

Date: Sun, 17 Jul 94 04:30:08 PDT  
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>  
Errors-To: Ham-Ant-Errors@UCSD.Edu  
Reply-To: Ham-Ant@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Ant Digest V94 #225  
To: Ham-Ant

Ham-Ant Digest                      Sun, 17 Jul 94                      Volume 94 : Issue    225

Today's Topics:

                    Antenna safety  
                    GPS antennas  
                    kites <--> antennas ?  
                    simple antennas  
                    Specs, DAIWA Remote Sensor?

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>  
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 15 Jul 1994 04:42:40 GMT  
From: ihnp4.ucsd.edu!agate!headwall.Stanford.EDU!glass@network.ucsd.edu  
Subject: Antenna safety  
To: ham-ant@ucsd.edu

I need to mount an antenna for a 900 MHz spread-spectrum radio link.

According to the manufacturer of the radio equipment, it works best  
when antennas are on a direct line of sight. However, because the  
building where the antenna will be is only 18' high, and some of the  
surrounding buildings are taller, it will need a tall mast or tower.

To figure out how high the antenna needs to be, I made a crude sextant  
from a yardstick, a protractor, and a photo tripod. After a few  
observations and a little math, I determined that one nearby building  
with a flat roof (plus a small shed on top) was about 30' tall at the  
roofline, with a chimney about 41' high. (Since local codes require  
the chimney to be the tallest part of the building, it should end

higher than the shed.) Another building in the area, an old Victorian mansion, came out to be about 54' high at its tallest spire.

The area where the antenna will reside is subject to strong winds all year round, so the mast or tower will have to be steady and strong. There's an average of one thunderstorm per day during the summer, so lightning protection needs to be good. The lot on which the building sits is 66' across, and there are high voltage power lines in the alley about 6' beyond the property line. The building butts right up against the opposite end of the property.

The antenna itself will be an omni with 9 dB of gain -- fairly expensive, but necessary to give it a good reach even when it's iced over.

What's the best method of mounting the antenna safely, securely, and high enough to work? The local Radio Shack said it had a 39' mast designed for TV antennas, which could be mounted on the roof using an eave or tripod mount. (The resulting height would be about 57' -- just about right.) But of course, I don't trust Radio Shack to know anything about antenna safety, or mounting it to resist winds. They also drew a blank when I asked about grounding and lightning protection.

What do I need to know to get the antenna up (and have it stay up)? How can I avoid having the building burn down if lightning strikes? How can I protect the digital transceiver at the end of the coax? And what precautions, if any, need to be taken about the power lines?

Any info, advice, comments, and pointers to literature would be much appreciated.

--Brett Glass

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"Beware when the great God lets loose a thinker on this planet. Then all things are at risk. It is as when a conflagration has broken out in a great city, and no man knows what is safe, or where it will end."  
-- Ralph Waldo Emerson

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Date: Sat, 16 Jul 1994 04:34:04 GMT

From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!gatech!newsxfer.itd.umich.edu!  
zip.eecs.umich.edu!yeshua.marcam.com!news.kei.com!news.byu.edu!  
hamblin.math.byu.edu!wicat!keithm@network.ucsd.

Subject: GPS antennas

To: ham-ant@ucsd.edu

Roger Corbett <R.Corbett@csc.canterbury.ac.nz> writes:

>  
>Most of the GPS antenna that I have come across are crossed dipoles of  
>some sort with the ends turned down and twisted around.  
>The other more important thing is that the antenna will have a low  
>noise  
>preamp in it and this is where the cost comes from...

These are QUADRIFILAR antennas. They feature circular polarization  
with the same direction at all points within a hemisphere. In other  
words exactly what GPS requires.

--

Keith McQueen, NACT, Inc	My opinions are
Packet: n7hmf @ nv7v.UT.USA.NA	all mine...
Internet: keithm@wicat.com	...so there!

-----  
Date: 15 Jul 1994 20:30:02 -0400  
From: newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@uunet.uu.net  
Subject: kites <--> antennas ?  
To: ham-ant@ucsd.edu

I worked a ham in Michigan who was using a helium-filled weather  
balloon on the end of a 150 foot peice of wire. He was S9+ here in West  
Virginia on a day when QRM and poor band conditions made most other  
stations unreadable. The advantage to the balloon approach is that it  
seems it would require less operator attention then keeping a kite flying.

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Date: 16 Jul 94 23:30:16 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: simple antennas  
To: ham-ant@ucsd.edu

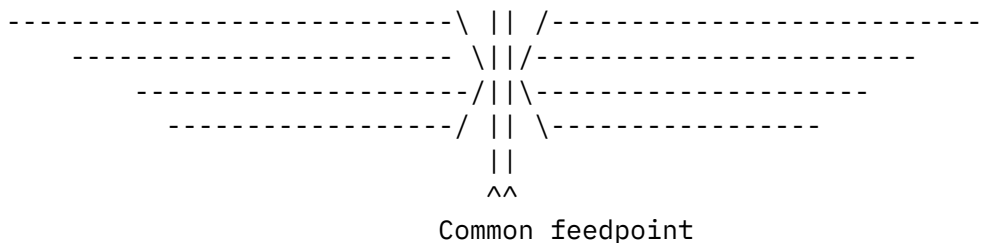
-----  
In Volume 94, issue 220 of Ham-ant digest, Tom Ferch asked;

>>Date: 12 Jul 1994 00:10:17 GMT  
>>From: netcomsv!netcomsv!tbm128.thomas.com!usenet@decwrl.dec.com  
>>Subject: Simple antenna  
>>To: ham-ant@ucsd.edu  
>>  
>>I am interested in making a simple antenna for my Realistic DX - 440.  
>>  
>>If I set up seperate antenna wires for each frequency band that I

>>am interested in (16, 19, 25, 31, 41, 49 meter bands) can I  
>>connect them to my radio with one wire or will that affect their  
>>performance? Should I use coax between my antennas and my radio?  
>> What is the best wire to use for my antennas?  
>>  
>>Any feed back would be greatly appreciated.  
>>  
>>Tom Ferch  
>>  
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since I am not sure how much space or what he is looking for,  
I offer these two ideas....

- 1) The old fashioned longwire, or
- 2) Multi band no trap dipole...



The wire used in this antenna is tv rotator wire. This type of antenna  
was the first antenna that I used as a swl.

The feedpoint was a hamfest special balun feeding into rg58.

Regards,  
Vernon Erle Ikeda  
AX25: ve2mbs@ve2fkb.#mtl.pq.can.noam  
Internet: ve\_iked@pavo.concordia.ca

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Date: Fri, 15 Jul 1994 17:19:52 GMT  
From: psinntp!news.rlc.n.rl.af.mil!news@uunet.uu.net  
Subject: Specs, DAIWA Remote Sensor?  
To: ham-ant@ucsd.edu

We are developing an automated test device here that requires input

from a remote power sensor like the Daiwa U-66H,V,orS series devices that sit in-line with the antenna and provide power information to their NS-660 series power meters (although we will be taking the information directly, digitizing it, and processing it from there). Problem seems to be getting information about the remote attachments; I have been unable to get any information through the usual vendors. There doesn't seem to be an easily accessible, knowledgeable source for detailing what the remote devices actually provide to the power meter. Any assistance from people familiar with these devices is appreciated. We are presuming that it provides forward and reverse power at the antenna output, with some scaling factor/transfer function based on the coupling used in the main device necessary to accurately portray the true power. More detailed information would be very helpful. Any ideas or suggested contacts out there?

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Date: Thu, 14 Jul 1994 15:26:25 GMT  
From: gatech!kd4nc!ke4zv!gary@uunet.uu.net  
To: ham-ant@ucsd.edu

References <2vak22\$psk@eis.calstate.edu>, <1994Jul12.160831.740@ke4zv.atl.ga.us>, <Csx0C9.8o2@news.Hawaii.Edu>I  
Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)  
Subject : Re: Antenna on my boat??

In article <Csx0C9.8o2@news.Hawaii.Edu> jeffrey@kahuna.tmc.edu (Jeffrey Herman) writes:

>In article <1994Jul12.160831.740@ke4zv.atl.ga.us> gary@ke4zv.atl.ga.us (Gary Coffman) writes:

>>

>>Probably a better idea though is to use a halfwave radiator so you  
>>don't \*need\* any groundplane. That's an 18 foot whip on 11 meters,  
>>and you'll need a matching network to match to the high base impedance,  
>....

>

>I wouldn't recommend this type of antenna for a small boat. The  
>base of the 18 foot vertical will be subjected to violent torquing  
>due to the severe motions which are always encountered on smaller  
>boats.

That's a good point, but probably more applicable to salt water boating than to fresh water river or lake boating where large waves are uncommon. I think the bigger problem would be bridge and overhanging tree clearances. A couple of non-metallic stays should reduce the torquing on the base, if that proved to be a problem.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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Date: Sat, 16 Jul 1994 05:21:05 GMT  
From: news.Hawaii.Edu!kahuna!jeffrey@ames.arpa  
To: ham-ant@ucsd.edu

References <vaughnwt.25.00128FB0@olympus.net>, <CsyzDH.9Cu@news.Hawaii.Edu>,  
<vaughnwt.26.000E6C75@olympus.net>  
Subject : Re: Antenna on my boat??

In article <vaughnwt.26.000E6C75@olympus.net> vaughnwt@olympus.net (William Vaughn) writes:  
>

I wrote:

>>Of course, being an ex-Coast Guard Radio Officer I must in good  
>>conscience say that one should/must have a VHF marine band radio;  
>>the USCG has an excellent coastal/lake VHF radio system and have  
>>radiomen listening 24 hours per day to channel 16 (156.80 MHz)  
>>just waiting to assist you. The antenna of choice is a 5/8 wave  
>>vertical; but a 1/4 wave ground plane atop a mast would suffice.  
>  
>>Jeff NH6IL  
>

>Jeff, buddy. We are talking about a "CB" antenna here. Why waste time on the  
>silly thing. Being an ex CG radio officer you are probably aware that the  
>coast guard does not monitor CB radio any longer. If there is a CB radio in  
>the comms room the radioman(person) has the gain and volume turned all the way  
>down. Being an ex CG radio officer how many times have you lost a person who  
>had a cb and had to relay thru someone who had a VHF?

Why do you think I suggested getting a VHF radio? Sheesh. But, here in Hawaii our fishing fleet operates on CB channel 19, so one's best bet is having both a CB and a VHF radio here.

Whatever lake the original poster is operating on might be so small that there is no VHF marine system in operation there. So, if his comms are entirely dependent upon his CB radio then he'll want the best possible antenna. It's possible the lake has a REACT monitor listening on channel 9.

>I suggested that he buy  
>one because they are cheap and he won't get that much better performance  
>anyway. Those vhf antennas you have for your boat, did you make them yourself  
>or did you buy one of those compromise fiberglass ones?

We're talking about a wavelength of 11 meters - commercial antennas at this wavelength are all compromises (unless they're half wave length).

On the VHF marine band the wavelength is less than 2 meters so the commercial antennas are not compromises; they even provide a certain amount of 'gain' from their lower angle of radiation.

I use a homebuilt 1/4 groundplane atop the mast of my sailboat for my VHF radio. You want a high angle of radiation off a sailboat antenna because the wind acting on the sails keeps the boat heeled over at sometimes drastic angles! Even with the sails down the boat is subject to a rocking motion due to ocean swell, so again one would still want an antenna with a high angle of radiation.

I think we've beat this topic to death.

Jeff NH6IL

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Date: Fri, 15 Jul 1994 06:58:29 GMT  
From: news.Hawaii.Edu!kahuna!jeffrey@ames.arpa  
To: ham-ant@ucsd.edu

References <1994Jul12.160831.740@ke4zv.atl.ga.us>, <Csx0C9.8o2@news.Hawaii.Edu>, <vaughnwt.25.00128FB0@olympus.net>  
Subject : Re: Antenna on my boat??

In article <vaughnwt.25.00128FB0@olympus.net> vaughnwt@olympus.net (William Vaughn) writes:

>

>Gary, go down to radio shack or your local marine/bait/hardware store and buy  
>a shakespeare marine fold down whip for your cb.

This is the second time today that someone has made reference to 'buying' an item that can easily be built (the earlier item was an antenna tuner). Gary's idea of a half-wave vertical is excellent for a base station but might suffer under marine conditions.

We shouldn't be so quick to direct someone to buy when we,

as amateurs whom are renowned for our skills of building something out of nothing, can fabricate many station items ourselves.

If the original poster wanted to buy a ready-to-go antenna that didn't require a ground he wouldn't have posed his question concerning a below-the-waterline ground plate.

In general, the best choices of shipboard antennas are:

1. Halfwave wire dipole extending from a mast to the stern or another mast (large powerboat or sailboat).
2. Halfwave vertical (heavy displacement ships, or powerboats operated in protected waters).
3. Quarter wave vertical in conjunction with a below-the-waterline ground plate (any vessel).
4. A random wire between masts, or mast and stern in conjunction with a below-the-waterline ground plate (large powerboat or sailboat).

I wouldn't want the commercial fiberglass 'compromise' CB antennas on a boat of mine; my radio is my lifeline to the shore - I want to make sure my signal is heard!

Of course, being an ex-Coast Guard Radio Officer I must in good conscience say that one should/must have a VHF marine band radio; the USCG has an excellent coastal/lake VHF radio system and have radiomen listening 24 hours per day to channel 16 (156.80 MHz) just waiting to assist you. The antenna of choice is a 5/8 wave vertical; but a 1/4 wave ground plane atop a mast would suffice.

Jeff NH6IL

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End of Ham-Ant Digest V94 #225

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